

IN THE CLAIMS

1. (Currently Amended) An apparatus for network management in a heterogeneous environment, comprising:

a relational interface embodied in a ~~computer-readable~~ machine-readable medium and operable to receive a relational query from a software application requesting network management information from a specified network device;

a relational mapper embodied in a ~~computer-readable~~ machine-readable medium and operable to translate the relational query received through the relational interface from the software application, to native protocol messages according to an access protocol associated with the network device; and

a protocol transaction handler embodied in a ~~computer-readable~~ machine-readable medium and operable to handle the native protocol messages as a transaction with the network device, and return a result of the transaction to the software application.

2. (Previously Presented) The apparatus of claim 1, wherein the relational mapper includes a relational model of the network device.

3. (Previously Presented) The apparatus of claim 1, wherein the relational mapper is operable to translate a query to plural messages corresponding to plural access protocols.

4. (Previously Presented) The apparatus of claim 1, wherein the relational mapper is expandable to receive queries directed to additional network devices which use other protocols different from said access protocol, transparent to said software application.

5. (Previously Presented) The apparatus of claim 1, wherein the collection of information of the network device is viewed as a relational database.

6. (Original) The apparatus of claim 1, wherein the relational query is independent of management and/or access protocols.

7. (Original) The apparatus of claim 1, wherein the translation of the relational query to native protocol messages is an abstraction transparent to said software application.

8. (Original) The apparatus of claim 1, wherein a form of the relational query does not depend on the access protocol to which the relational query is to be translated.

9. (Currently Amended) A relational modeler embodied in a ~~computer-readable~~ machine-readable medium and operable to translate a relational query from a software application requesting network management information from a specified network device, to native protocol messages according to an access protocol associated with the network device, wherein said native protocol messages is handled as a transaction with the network device.

10. (Currently Amended) A computer data signal embodied in a ~~computer-readable~~ machine-readable medium, for network management in a heterogeneous environment, comprising:

a first segment including relational interface code to receive a relational query from a software application requesting network management information from a specified network device;

a second segment including relational mapper code to translate the relational query received from the software application, to native protocol messages according to an access protocol associated with the network device; and

a third segment including protocol transaction handler code to handle the native protocol messages as a transaction with the network device, and return a result of the transaction to the software application.

11. (Previously Presented) A method for network management in a heterogeneous environment, comprising:

receiving a relational query from a software application requesting network management information from a specified network device;

translating the relational query received from the software application, to native protocol messages according to an access protocol associated with the network device; and

handling the native protocol messages as a transaction with the network device and returning a result of the transaction to the software application.

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Previously Presented) The apparatus of claim 1, wherein the access protocol associated with the network device is selected from a group consisting of:

Simple Network Management Protocol;
Common Management Information Protocol;
Command Line Interface;
Hypertext Transfer Protocol;
Structured Query Language; and
Simple Object Access Protocol.

16. (Previously Presented) The apparatus of claim 1, further comprising the relational mapper operable to translate the relational query, in the form of Structured Query Language, received through the relational interface from the software application, to native protocol messages according to an access protocol, in the form of Simple Network Management Protocol, associated with the network device.

17. (Previously Presented) The computer data signal of claim 10, wherein the access protocol associated with the network device is selected from a group consisting of:

Simple Network Management Protocol;
Common Management Information Protocol;
Command Line Interface;
Hypertext Transfer Protocol;
Structured Query Language; and
Simple Object Access Protocol.

18. (Previously Presented) The computer data signal of claim 10, further comprising the second segment including relational mapper code to translate the relational query, in the form of Structured Query Language, received from the software application, to native protocol messages according to an access protocol, in the form of Simple Network Management Protocol, associated with the network device.

19. (Previously Presented) The method of claim 11, wherein the access protocol associated with the network device is selected from a group consisting of:

Simple Network Management Protocol;

Common Management Information Protocol;

Command Line Interface;

Hypertext Transfer Protocol;

Structured Query Language; and

Simple Object Access Protocol.

20. (Previously Presented) The method of claim 11, wherein translating the relational query received from the software application, to native protocol messages according to an access protocol associated with the network device comprises translating the relational query, in the form of Structured Query Language, received from the software application, to native protocol messages according to an access protocol, in the form of Simple Network Management Protocol, associated with the network device.

21. (New) A computer system, comprising:

a processor; and

a program storage device readable by the computer system, tangibly embodying a program of instructions executable by the processor to:

receive a relational query from a software application requesting network management information from a specified network device;

translate the relational query received from the software application, to native protocol messages according to an access protocol associated with the network device; and

handle the native protocol messages as a transaction with the network device and returning a result of the transaction to the software application.

22. (New) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to:

receive a relational query from a software application requesting network management information from a specified network device;

translate the relational query received from the software application, to native protocol messages according to an access protocol associated with the network device; and

handle the native protocol messages as a transaction with the network device and returning a result of the transaction to the software application.

23. (New) A computer data signal including one or more segments-embodied in a machine-readable medium which embodies instructions executable by a computer to:

receive a relational query from a software application requesting network management information from a specified network device;

translate the relational query received from the software application, to native protocol messages according to an access protocol associated with the network device; and

handle the native protocol messages as a transaction with the network device and returning a result of the transaction to the software application.